SUBCHAPTER F : STANDARDS FOR CLASS III WELL PRODUCTION AREA DEVELOPMENT

§331.101. Applicability.

This subchapter establishes additional standards for Class III well injection activities regarding the development of production or other areas authorized by an area permit and/or production area authorization.

§331.102. Confinement of Mining Solution.

Mining solutions shall be confined to the production zone within the area of designated production zone monitor wells.

§331.103. Production Area Monitor Wells.

(a) Production zone monitoring. Designated Production Zone Monitor Wells shall be spaced no greater than 400 feet from the production area and no greater than 400 feet between the wells. The angle formed by lines drawn from any production well to the two nearest monitor wells will not be greater than 75°. Changes or adjustments in designated production zone monitor well locations may be authorized by the executive director so as to assure adequate containment. These wells shall be subject to the sampling, corrective action, and reporting requirements in §331.105 of this title (relating to Monitoring Standards) and §331.106 of this title (relating to Remedial Action for Excursion).

(b) Nonproduction zone monitoring. At a minimum, designated non-production zone monitor wells shall be completed in the production area in any freshwater aquifer overlying the production zone. These wells shall be located not more than 50 feet on either side of a line through the center of the production area with a minimum of one per every four acres of production area for wells completed in the first overlying freshwater aquifer and one per every eight acres for wells completed in any additional overlying freshwater aquifers. Changes or adjustments in designated non-production zone monitor well locations may be authorized by the executive director so as to assure adequate containment. Those wells completed in the first overlying freshwater aquifer shall be subject to sampling, remedial action, and reporting requirements of §331.105 of this title (relating to Monitoring Standards) and §331.106 of this title (relating to Remedial Action for Excursion). Monitor wells completed in any additional overlying freshwater aquifers shall be subject to monitoring, remedial action, and reporting requirements specified in the permit.

§331.104. Establishment of Baseline and Restoration Values.

(a) One or more water samples shall be collected from each designated monitor well (Production and Non-Production Zone) and each designated production well in the permit or production area. These samples will be analyzed and the results for each well submitted and summarized on forms provided by the executive director as follows:

(1) mine area baseline - The averages and ranges of the parameter values determined for the designated production zone monitor wells;

(2) production area baseline - The averages and ranges of the parameter values determined from at least five designated production zone wells in the production area; and,

(3) nonproduction zone baseline - The averages and ranges by zone of the parameter values determined for designated nonproduction zone monitor wells.

(b) All samples shall be collected, preserved, analyzed, and controlled according to accepted methods as stated in the permit.

(c) The baseline water quality values for a permit or production area shall be used to determine control parameter upper limits.

(d) The baseline water quality values for a permit or production area shall be used to determine restoration table values. Each production area authorization shall contain a restoration table. The table may be developed by using either:

(1) the higher value in either the column headed "Mine Area Average" or the column headed "Production Area Average" for parameters shown on the production area baseline water quality form for the production zone; or

(2) predictions of restoration quality that are reasonably certain after giving consideration to the factors specified in §331.107(f) of this title (relating to Restoration).

§331.105. Monitoring Standards.

The following shall be accomplished to detect mining solutions in designated monitor wells.

(1) Routine sampling - Water samples shall be taken at least twice a month at two-week intervals from all monitor wells for permit/production area(s) in which mining solutions have been introduced. These shall be analyzed for the Control Parameters by the second working day and reported as required in §331.85(e) of this title (relating to Reporting Requirements). The determined values shall be entered on appropriate forms within three working days after analysis. These data shall be kept readily available on site for review by TWC representatives.

(2) Duration of monitoring program - The program of monitoring detailed in paragraph

(1) of this subsection shall be continued in each permit/ mine area until the executive director is officially notified that restoration has commenced. Further monitoring as required by permit shall continue until aquifer restoration and stabilization in that particular permit/mine area has been achieved in compliance with §331.107 of this title (relating to Restoration).

(3) Verifying analysis - If the results of a routine sample analysis show that the value of any Control Parameter is equal to or above the Upper Limit established for that permit/mine area, the operator shall complete a verifying analysis of samples taken from each apparently affected well within two days.

(4) Sampling frequency when mining solutions present - During the period of time when mining solutions are present in a designated monitor well, water samples will be taken at least 2 times per week, and analyzed for all control parameters by the second day after the sample is taken.

§331.106. Remedial Action for Excursion.

If the verifying analysis indicates that mining solutions are present in a designated monitor well, the operator shall take the following actions:

(1) Notification - Notify the district office by the next working day by telephone and notify the executive director by letter postmarked within 48 hours identifying the affected monitor well and submitting the control parameter concentrations. This letter shall be addressed to the executive director in care of the Director, Hazardous and Solid Waste Division.

(2) Analysis - Complete a groundwater analysis report for each affected well on forms provided by the executive director (including Accuracy Checks and Stiff Diagram) for the following: pH, Calcium, Magnesium, Sodium, Potassium, Carbonate, Bicarbonate, Sulfate, Chloride, Silica, Total Dissolved Solids (180∘C), Specific Conductance and dilute Conductance, and any other specified constituents. Results shall be reported in accordance with §331.85(e) of this title (relating to Reporting Requirements).

(A) Clean-up - The permittee will clean up all designated monitor wells, all zones outside of the production zone, and the production zone outside of the mine area that contain mining solutions. The permittee may use any method judged necessary and prudent to define the extent of the mining solutions and to effect this clean-up in an expeditious and practical manner. Well clean-up is deemed to be accomplished when the water quality in the affected monitor well(s) has been restored to values consistent with current local baseline water quality as confirmed by three consecutive daily samples for the Control Parameters.

(B) The executive director may determine that cleanup is not necessary if the permittee can demonstrate that the change in water quality is not due to the presence of mining solutions or fluids from other mining activities.

§331.107. Restoration.

(a) Restoration table. Upon issuance and renewal, Class III permits and production area authorizations shall contain a restoration table listing restoration goals as provided by §331.104 of this title (relating to Establishment of Baseline and Restoration Values).

(b) Mining completion. When the mining of a permit or production area is completed, the permittee shall notify the appropriate Texas Water Commission district office, and the executive director, and shall proceed to reestablish groundwater quality in the affected permit or mine area aquifers to levels consistent with the values listed in the restoration table for that permit or mine area. Restoration efforts shall begin as soon as practicable but no later than 30 days after mining is completed in a particular production area. The executive director, subject to commission approval, may grant a variance from the 30-day period for good cause shown.

(c) Timetable. Aquifer restoration, where appropriate for each permit or mine area, shall be accomplished in accordance with the timetable specified in the currently approved mine plan, unless otherwise authorized by the commission. Authorization for expansion of mining into new production areas may be contingent upon achieving restoration progress in previously mined production areas within the schedule set forth in the mine plan. The commission may amend the permit to allow an extension of the time to complete restoration after considering the following factors:

(1) efforts made to achieve restoration by the original date in the mine plan;

(2) technology available to restore groundwater for particular parameters;

(3) the ability of existing technology to restore groundwater to baseline quality in the area;

(4) the cost of achieving restoration by a particular method;

(5) the amount of water which would be used or has been used to achieve restoration;

(6) the need to make use of the affected aquifer; and

(7) complaints from persons affected by the permitted activity.

(d) Reports. Beginning six months after the date of initiation of restoration of a permit or production area, as defined in the mine plan, the operator shall provide to the executive director semiannual restoration progress reports until restoration is accomplished for the permit or mine area.

(e) Stability sampling. The permittee shall obtain stability samples and complete an analysis for certain parameters listed in the restoration table from all production area baseline wells. Stability samples shall be conducted at a minimum of 30-day intervals for a minimum of three sample sets and reported to the executive director. The permittee shall notify the executive director at least two weeks in advance of sample dates in order to provide the opportunity for splitting samples and for selecting additional wells for sampling, if desired. To insure water quality has stabilized, a period of 180 days must elapse between cessation of restoration operations and the final set of stability samples. The executive director shall determine within 45 days of the receipt of all sample analysis results whether or

not restoration has been achieved. Upon acknowledgement in writing by the executive director confirming achievement of final restoration, the permittee shall accomplish closure of the area in accordance with §331.86 of this title (relating to Closure).

(f) Restoration table values not achieved. After an appropriate effort has been made to achieve restoration to levels consistent with values listed in the restoration table for a production area, the permittee may cease restoration operations, reduce bleed and request that the restoration table be amended. With the request for amendment, the permittee shall submit the results of three consecutive sample sets taken at a minimum of 30-day intervals from all production area baseline wells used in determining the restoration table to verify current water quality. Stabilization sampling may commence 60 days after cessation of restoration operations.

(1) In determining whether the restoration table should be amended, the commission will consider the following items addressed in the request:

(A) uses for which the groundwater was suitable at baseline water quality levels;

(B) actual existing use of groundwater in the area prior to and during mining;

(C) potential future use of groundwater of baseline quality, and of proposed restoration quality;

(D) the effort made by the permittee to restore the groundwater to baseline;

(E) technology available to restore groundwater for particular parameters;

(F) the ability of existing technology to restore groundwater to baseline quality in the area under consideration;

(G) the cost of further restoration efforts;

(H) the consumption of groundwater resources during further restoration; and

(I) the harmful effects of levels of particular parameter.

(2) The commission may amend the restoration table if it finds that:

(A) reasonable restoration efforts have been undertaken giving consideration to the factors listed in paragraph (1) of this subsection;

(B) the values for the parameters describing water quality have stabilized for a period of 180 days;

(C) the formation water present in the aquifer would be suitable for any use to which it was reasonably suited prior to mining; and

(D) further restoration efforts would consume energy, water, or other natural resources of the state without providing a corresponding benefit to the state.

(3) If the restoration table is amended, restoration sampling shall commence and proceed as described in subsection (e) of this section.